

Implementing a National Missile Defense system is one of the U.S. Defense Department's top priorities. Once the official "go-ahead" is given, DoD will be on the fast track to deploy the system's powerful new tracking radar at one of the toughest locales in the Air Force.

# Bedding Down the X-Band Radar: A New Mission Proposed for Eareckson Air Station

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Eareckson Air Station is located on Shemya Island, a diminutive piece of real estate near the tip of the windswept Aleutian Islands in Alaska. At 1,500 air miles from Anchorage, the island is actually closer to Russia and Japan than to Alaska's largest city. It is Shemya's location that makes the island so important in the National Missile Defense (NMD) strategy.

The NMD system is intended to protect all 50 states from an incoming missile. While the primary threat to the United States no longer comes from a calculated strategic nuclear attack by the Soviet Union, our major concerns are accidental or unauthorized missile attacks by established powers and calculated strikes by "rogue nations" such as Iran, Iraq and North Korea.

The need for and timing of an NMD system has been the subject of much debate and intense scrutiny. Even so, many people in the United States believe we have a missile defense system already in place. Nothing could be further from the truth. In fact, putting such a system in place will require five years of construction and the efforts of several military and contract organizations.

## A New Mission

Components of the NMD system include: ground based interceptors (GBI), battle management command and control (BMC2), an in-flight interceptor communications system (IFICS) data terminal, upgraded early warning radars (UEWR) and an X-band radar (XBR).

The GBI is the weapon of the system. It is designed to intercept incoming ballistic missile warheads outside the earth's atmosphere and destroy them on impact. The GBIs would remain in underground silos. Launches would occur only in defense of the United States from a ballistic missile attack — there would be no flight-testing of the missiles at the NMD deployment site. The GBI site would contain launch silos and related support facilities. Up to 100 GBI silos could be deployed. GBIs are not planned for basing at Shemya, but could be based at Fort Greeley, near Delta Junction, Alaska, or in northeastern North Dakota.

The BMC2 is the "brains" of the NMD system, and the IFICS Data Terminal ground stations provide communications links between the in-flight GBI and the BMC2.

The NMD system will require an upgrade to existing early warning radars at Clear AS, Alaska, Beale Air Force Base, Calif., and Cape Cod AS, Mass. These early warning radars, also referred to as "PAVE PAWS," are phased-array surveillance radars currently used to detect, track and provide early warning of sea-launched ballistic missiles. They also track satellites and space debris. Hardware and software modifications are planned for these existing radars, in conjunction with the NMD system, to allow the acquisition, tracking and classification of small objects near the horizon and provide data to other NMD elements using improved communications.

The NMD system's XBR will be a ground-based, multi-function radar capable of performing tracking, discrimination and kill assessments of incoming ballistic missile warheads. The XBR site at Eareckson will include a radar and associated support facilities.

Any deployment may require elements of the system to use existing fiber optic lines, power lines and other utilities, so modifications may be required. Some locations may require the acquisition of new rights-of-way and installation of new utility and fiber optic cable. Potential new land fiber optic cable line locations

include those along the Aleutian Islands to Eareckson. In addition, redundant fiber optic cable lines may be required in some locations for security purposes.

The 611th Air Support Group is deeply involved in preplanning activities for this new and important mission, which will require several million dollars in military construction (MILCON) facilities at Shemya Island alone.

## Challenges Ahead

The island of Shemya may be a perfect location for the antiballistic missile radar, but it is a terrible place to try to build anything. But once the President says “go,” the Pentagon plans to build the new 10 story-high radar there. The plan is to have the whole system up and running in less than five years, which, on this remote island, translates to a war against the elements and a logistical nightmare.

The weather on Shemya poses quite a challenge as it is very unpredictable — changing by the hour, and sometimes by the minute. Although average precipitation is only 2 to 4 inches per month, some form of precipitation occurs on a nearly daily basis.

The average low temperature during Shemya’s coldest month (February) is a relatively mild 28 degrees Fahrenheit, but it is not unusual to witness hurricane force winds, enormous waves from the meeting of the Bering Sea and Pacific Ocean, and blizzards throughout the long winter months.

With construction on Shemya, we face monumental logistics issues such as barge sailings and unloading in rough seas. Equipment and supplies for the project, nearly all of the construction materials and heavy equipment, are not found on the island and will have to be hauled from Seattle — 3,000 miles away. This means hiring enormous barges to make the trip, then lining them up at Shemya’s one dock to unload.

Erecting a 108-foot-high inflatable radar dome in an area with almost no respite from high winds poses a tremendous engineering challenge. In addition, Shemya has been rocked repeatedly by earthquakes over the years, requiring significant seismic design efforts to overcome the forces of Mother Nature and to prevent or keep damage to a minimum.

A 1965 earthquake in the nearby Rat Islands measuring 8.7 on the Richter scale caused cracks in Shemya’s asphalt runway and created crevasses with as much as 16.5 meters of vertical displacement. Landslides occurred, water tanks twisted and underground water pipes broke. Many aftershocks were felt during the following weeks, and the quake generated a tsunami on Shemya reported to be about 10.7 meters high.

To counteract the effects of another earthquake of that magnitude there, the foundation planned for the radar alone will be over 25 feet thick and require more than 9,000 cubic yards of reinforced concrete to construct.

Reliable and cost effective primary power is another challenge in a place as remote as Shemya. To ensure continued mission success, a dedicated diesel generator power plant with high energy magnetic pulse (HEMP) shielding will be constructed to provide mission-critical power to the NMD system.

While construction of the NMD facilities on Shemya is very feasible, the effort will not be successful without a great degree of coordination and preparation. The many facilities now standing at Eareckson are a testament to DoD’s ability to marshal the resources and talent needed to effectively build in the Aleutians.

## If We Build It, They Will Come

The latest in living amenities for assigned NMD personnel will be included in the package. Even though Shemya is sometimes referred to as the “Black Pearl of the Pacific,” one could say it is not exactly a Pacific island paradise. Attracting and keeping quality people with the talent and savvy needed to run a complex that provides for our first measure of defense from rogue nations will certainly be impacted by the quality of life found at Shemya.

General Ronald R. Fogleman, former U.S. Air Force chief of staff, said at the Defense Forum Foundation in Washington D.C. on Jan. 24, 1997, that Shemya was “a God-forsaken place if you want to know the truth.” However, despite that assessment and knowing the formidable challenges we face, we believe we can go a long way toward enhancing quality of life on Shemya with the advent of this new and important mission.

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*Sidebar:*

The National Missile Defense construction and beddown at Eareckson has generated much high-level interest, leading to briefings to the Vice Chairman of the Joint Chiefs of Staff and Deputy Secretary of State. The Chairman, Senate Appropriations Committee; the Deputy Secretary of Defense; and the NASA Administrator on National Missile Defense have visited Eareckson and been briefed by the 611th Air Support Group. National news media interest in the island and the unique support role it may have in this program has increased as well.

*(Opposite) A conceptual drawing of the proposed X-Band Radar at Eareckson Air Station. (Above) A satellite photo of Shemya, an 8-square-mile island in Alaska's Aleutian Island chain. (Courtesy 611 ASG)*